

WHAT IS CLAIMED IS

1. A sheet-like chemical cell comprising an electrolyte membrane, a plurality of anode plates which oxidizes a fuel gas on one surface of said electrolyte membrane, and a plurality of cathode plates which reduces oxygen gas on the other surface of said electrolyte membrane with said anode and cathode plates opposed each other in pairs with the membrane therebetween.

2. The sheet-like chemical cell of claim 1, wherein said chemical cell further comprises slots each of which is provided between every two adjoining electrode plates on said electrolyte membrane and wiring members which electrically connect said adjoining anode and cathode plates in series through each of the slots.

3. The sheet-like chemical cell of claim 1, wherein said chemical cell further comprises slots each of which is provided between every two adjoining electrode plates on said electrolyte membrane, an anode wiring plastic sheet on which anode wirings are formed respectively in contact with said anode plates, a cathode wiring plastic sheet on which cathode wirings are formed respectively in contact with said cathode plates, and said adjoining anode and cathode

plates are electrically connected in series with said wiring sheets through the slots.

4. The sheet-like chemical cell of claim 1, wherein said anode and cathode plates are porous
5 membranes prepared by a slurry containing catalyst-carrying carbon powder, electrolyte, and solvent.

5. The sheet-like chemical cell of claim 4, wherein the catalyst of said anode plate is made of a Pt-Ru alloy or an alloy including Pt-Ru as the main
10 ingredient and the catalyst of said cathode plate is made of a Pt alloy or an alloy including Pt as the main ingredient.

6. A method for manufacturing a sheet-like chemical cell, comprising a step of hot-crimping a set
15 of an electrolyte membrane, a plurality of anode plates of a preset planar shape on one surface of said electrolyte membrane, and a plurality of cathode plates of a preset planar shape on the other surface of said electrolyte membrane.

20 7. The method for manufacturing a sheet-like chemical cell of claim 6 comprising said hot-crimping step, wherein said method further comprises the steps of preparing an assembly having a slot between every two adjoining anode plates and a slot between every
25 two adjoining cathode plates on said electrolyte

membrane, sandwiching said assembly between two plastic wiring sheets having wiring layers of the same planar shapes as those of said anode and cathode plates with said wiring layers matched with said electrode plates to be in contact with each other at slot positions, and fusion-bonding said wiring layers together through said slots so that the wiring layers may be electrically connected in series.

8. The method for manufacturing a sheet-like chemical cell of claim 6 comprising said hot-crimping step, wherein said method further comprises the steps of forming slots, forming two plastic sheets having wiring layers of the same planar shapes as those of said anode and cathode plates with said wiring layers matched with the electrode plates, sandwiching said electrolyte membrane in place between said two plastic wiring sheets having wiring layers with said wiring layers matched with said electrode plates to be in contact with each other at slot positions which are provided respectively between every two adjoining anode plates and between every two adjoining cathode plates, and fusion-bonding said wiring layers together through said slots so that the wiring layers may be electrically connected in series.

9. A fuel cell assembly having the sheet-like

chemical cell of claim 1 on either or both of the surfaces of a fuel supply section including a porous material which diffuses liquid fuel by the capillary action with said anode plate in contact with said fuel
5 supply section.

10. A fuel cell assembly having a plurality of unit cells formed on a single electrolyte membrane.

11. The fuel cell assembly of claim 10, wherein the anode side of said unit cell is placed to be in
10 contact with either or both of the surfaces of a fuel supply section including a porous material which diffuses liquid fuel by the capillary action.

12. A method for manufacturing a fuel cell assembly comprising the method for manufacturing a
15 sheet-like chemical cell of claim 6.

13. A method for manufacturing a sheet-like chemical cell comprising the method for manufacturing a sheet-like chemical cell of claim 6, wherein the anode of said unit cell is placed to be in contact
20 with either or both of the surfaces of a fuel supply section including a porous material which diffuses liquid fuel by the capillary action.